WIA1002/WIB1002 DATA STRUCTURE

LAB TEST 3 (A)

INSTRUCTION:

- **Make sure you sign and state your PC number on the attendance sheet.**
- **Create a Netbeans project entitled "YourMatrixNumber_Lab Test 3" and save your whole project to Z drive.**
- **Type your name, matrix number, tutorial group and tutorial lecturer's name on each file.**
- **Put away all your books/notes. Off your mobile phone. Do not communicate with anyone except your lecturer or teaching assistants. Treat this as a real exam.**
- **Any form of misconduct (copying) will be severely penalized. ZERO mark when you look at your phone, open any browser / chat program or try in any ways to communicate with others, or if you access Internet, or save the test question or your answer and bring them out of the lab or upload them online.**
- **Time allocation: 60 minutes**

QUESTION

(a) Write a method named 'MergeSort' to implement merge sorting algorithm to sort an integer array having six elements in it. The six array elements are: 8, 7, 5, 1, 10, and 3. (1 Mark)
(b) Write the statements in the *main* method to test the 'MergeSort' method. (1 Mark)
(c) Copy and paste the 'MergeSort' method you developed in (a). Rename the method's name to 'GenericMergeSort'. Modify the code to implement it as a generic merge sort method by using *Comparable* interface. (1 Mark)
(d) Write the statements in the *main* method to test 'GenericMergeSort' method. (1 Mark)

Sample Output:

```
Unsorted Array:
8       7       5       1       10      3

Sorted Array using Merge Sort Algorithm:
1       3       5       7       8       10

Sorted Array using Generic Merge Sort Algorithm:
1       3       5       7       8       10
```

Marking scheme:

1. Full marks if you are good enough to answer all the questions correctly. Well done and keep in up.

2. THREE marks if you can do up to 3 steps. Practice more.
3. TWO marks if you can do 2 Steps. Practice more.
4. ONE mark if you can only 1 step. Please practice more and more and more as you will definitely need this to continue this subject.
5. ZERO mark if and only if you could not answer all the questions correctly. We do not expect this but if so please go to revisit programming I lecturers particularly Dr. Ang or else you will have high possibility to repeat this subject.

If you have any question, raise your hand and you will be attended at the soonest possible